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Marine Radio Telephony

RADIO TECHNICAL COMMISSION for MARINE SERVICES

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HOW TO CORRECTLY OPERATE YOUR MARINE RADIOTELEPHONE SET

Fourth Edition

January 1972

RADIO TECHNICAL COMMISSION FOR MARINE SERVICES
Washington, D. C. 20554

Single Copy Price $1.00
Additional copies may be purchased from
RADIO TECHNICAL COMMISSION FOR MARINE SERVICES
c/o Federal Communications Commission
Washington, D. C. 20554

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FOREWORD

This fourth edition represents an updating and reorganization of the manual "Marine Radio Telephony," originally prepared by the Radio Technical Commission for Marine Services, Special Committee No. 34, and accepted as an official paper of the Radio Technical Commission for Marine Services on December 18, 1956. Periodic updating has been necessary in order to reflect amendments to the FCC Rules and Regulations. Issuance of this new edition also provides the opportunity to include important information pertaining to the VHF-FM Maritime Mobile Band (156–162 MHz).

The information contained in this manual is addressed primarily to owners of small craft who voluntarily equip their craft with radiotelephone communications equipment capable of operation in any of the maritime mobile radiotelephone bands. If you are a commercial operator, find out whether you must carry radiotelephone equipment. The actual requirements vary considerably, depending on the waters navigated and the type of voyage.

The Radio Technical Commission for Marine Services is a cooperative association of U.S. Government and nongovernment marine telecommunications agencies. It studies marine telecommunication problems and associated matters with the objective of resolving these problems by mutual agreement of its member agencies and making coordinated recommendations to all the U.S. organizations concerned.

Because the Radio Technical Commission for Marine Services is not an official agency of the U.S. Government, its recommendations may not be regarded as statements of official Government policy unless they have been enunciated by the Government agency or agencies having statutory responsibility for matters covered by the recommendations.

PART I

Chapter 1. Quick Reference Summary

DISTRESS INFORMATION SHEET

When as a boatman, you find yourself in an emergency situation, your first thought should be to seek assistance. The type of assistance needed will depend on the severity of the emergency. Use any available means to attract attention such as:

- Radiotelephone
- Visual (flags, flares, lights, etc.)
- Audio (whistle, siren, bell, bullhorn, megaphone)

For boats equipped with a radiotelephone set, help is just a radio signal away. Many Coast Guard and public coast stations maintain continuous radio watch on the distress frequencies (2182 kHz and 156.8 MHz). In addition, radio-equipped boats monitor one or both distress frequencies.

Spoken Emergency Signals

There are three spoken emergency signals:

1. **Distress Signal: MAYDAY**
   Used if there is an immediate danger of loss of life or property. MAYDAY has priority over all other communications.
2. **Urgency Signal: PAN**
   Used when the safety of the vessel or person is in jeopardy. "Man overboard" messages are sent with the urgency signal. PAN has priority over all other communications with the exception of distress traffic.
3. **Safety Signal: SECURITY**
   Used for messages concerning the safety of navigation or giving important meteorological warnings.

Distress Frequencies

Distress messages are normally transmitted on the frequencies 156.8 MHz or 2182 kHz. However, when your craft is in distress and you receive no answer to a distress message transmitted on the distress frequency, you may repeat the message on any other available frequency on which you can attract attention.

Sample Distress Call and Message

The following guide provides a quick reference for information to be transmitted as part of the distress message. For detailed instructions concerning the distress message, as well as the urgent and safety messages, turn to Chapter 4.

The essence of the distress message is LOCATION OF CRAFT AND HELP NEEDED, consisting of:

- Distress signal MAYDAY (spoken three times).
- Call sign and name of the vessel in distress.
- Position of vessel in distress either by latitude and longitude or by bearing (true or magnetic — state which) and distance from a well-known geographic reference, such as a point of land, aid to navigation, or island.
- Nature of the distress (sinking, fire, etc.).
- Any other information which might facilitate rescue such as:
  length or tonnage of vessel
  number of persons on board and number needing medical attention
  color of hull, decks, cabin, etc.

Example: Distress Call

(Send radiotelephone alarm signal, if available, for at least 30 seconds but not more than 1 minute.)

MAYDAY—MAYDAY—MAYDAY — THIS IS WA 1234—
WA 1234—WA 1234 — BLUE DUCK—BLUE DUCK—
BLUE DUCK — DUNGENESS LIGHT BEARS
185 DEGREES MAGNETIC—DISTANCE 3 MILES —
STRUCK SUBMERGED OBJECT — TAKING WATER
FAST — ENGINE DISABLED — NEED PUMPS—
MEDICAL ASSISTANCE — AND TOW — ONE PERSON
COMPOUND FRACTURE OF ARM — ESTIMATE WILL

REMAIN AFLOAT TWO HOURS — VESSEL IS TWENTY FOOT CABIN CRUISER WHITE HULL BLUE TRIM — OVER

After you receive an acknowledgement of your distress message, you may pass additional information as necessary to facilitate rescue.

PUBLIC CORRESPONDENCE INFORMATION SHEET

Three classes of public coast stations provide the means by which you can make a ship-to-shore telephone call for personal or business reasons:

VHF-FM Service (Public Class III–B)
Coastal Harbor Service (Public Class II–B)
High Seas Service (Public Class I–B)

The large number of stations available provide service over a wide frequency range and for distances from close offshore to world-wide, depending on the type of set you have installed. Detailed procedures for originating and receiving calls, and for information on stations now providing this service are given in Chapter 5.

GOOD OPERATING PRACTICES INFORMATION SHEET

The present Marine Radiotelephone Systems do not always function in an acceptable manner. Improper, overlong, or commonplace transmissions do not belong on the intership frequencies or on the distress and calling frequencies. Such unwise use of the calling and safety channels can and has seriously degraded the potential of the system and has often created dangerous confusion and disorder.

The growing number of radio-equipped boats makes it important that you observe—and be sure that others on board your craft also observe—a few basic rules pertaining to the operational use of your radio.

Here are a few of the basic procedures to follow in operating your radio:

- Before getting underway, BE SURE YOUR EQUIPMENT IS IN WORKING ORDER. Make test transmissions only when strictly necessary. Be very brief and confine two-way tests to working frequencies. Transmit the word TEST and your call sign while observing for normal output. A variable-brilliance lamp or meter may be provided for this purpose.

Usually, receivers can be tested by hearing others during a few minutes of listening.

- Always IDENTIFY YOUR STATION PROPERLY ON EACH FREQUENCY with your call sign.
- Always LISTEN TO BE SURE THE CHANNEL IS CLEAR BEFORE TRANSMITTING. This precaution will help to eliminate possible interference with someone who is already using the channel.
- USE EITHER OF THE DISTRESS FREQUENCIES, 2182 kHz and 156.8 MHz (Channel 16), to establish contact with another station. On making contact, you must shift to a working frequency unless you are in distress or have spoken the urgency signal.
- GIVE PRIORITY TO DISTRESS AND SAFETY COMMUNICATIONS.
- KEEP ALL CONVERSATIONS BRIEF, consistent with clarity. By observing this common courtesy, you will allow others to use the channel and avert interference by some who may be justifiably impatient.

PART II

Chapter 2. System Description

GENERAL

Although the information contained in this manual is addressed primarily to owners of small craft who voluntarily equip their craft with radiotelephone communications equipment capable of operation in any of the maritime mobile radiotelephone bands,[1] it is also applicable to compulsorily equipped vessels. The main purpose is to familiarize the licensee with the proper use of this equipment so as to realize the maximum benefits possible in the present radiotelephone system. Specific attention is paid to the 2 MHz and 156–162 MHz bands and their distress frequency feature.

Practically speaking, recreational boats are not required to carry radiotelephone equipment. Boats carrying more than six passengers for hire, however, are required to carry radio. Vessels of greater than 300 gross tons are required to carry radio equipment to conform to the Safety of Life at Sea Convention. Many smaller commercial vessels, including dredges, towing vessels, etc., are required to carry VHF-FM equipment. If you operate a commercial vessel, find out whether you must carry radiotelephone equipment. The actual requirements vary considerably, depending on the waters navigated and the type of voyage.

In general, this manual is applicable to all vessels carrying radiotelephone equipment; however, if your vessel is compulsorily equipped, you should exercise caution in accepting all statements herein, especially in regard to licensing, operating, or log keeping. Regardless of your reasons for equipping your vessel, consult a current copy of Part 83 of the FCC Rules for compliance with the regulations.

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[1] Radiotelephone bands are defined as the 2, 4, 6, 8, 12, and 22 MHz bands and the 156–162 MHz VHF-FM maritime mobile band.

FUNCTIONS OF SYSTEM

With the distress and calling frequencies, 2182 kHz and 156.8 MHz (Channel 16), as the keystones, the present radiotelephone system is designed to serve the following separate communications functions:

- Distress, urgency, and safety
- Governmental
- Operational
- Commercial
- Noncommercial
- Public correspondence

The DISTRESS, URGENCY, AND SAFETY FUNCTION of the system is provided by designating the frequencies 2182 kHz and 156.8 MHz (Channel 16) for distress communications between all stations equipped to operate in these bands, whether aboard ship or on shore. To insure that a maximum number of stations stand watch on these two frequencies, the International Regulations state they may also be used for calling and answering. In addition, provisions have been made in both bands for broadcasting of weather reports, notices to mariners, and other information necessary to the safety of navigation.

The GOVERNMENTAL FUNCTION of the system sets aside frequencies for communications between your vessel and both local and federal agencies.

The OPERATIONAL FUNCTION of the system provides frequencies for the exchange of information pertaining to navigation, movement, or management of vessels.

The COMMERCIAL FUNCTION of the system provides frequencies for vessels and stations actively engaged in commercial enterprises.

The NONCOMMERCIAL FUNCTION of the system provides frequencies for the recreational boatman.

The PUBLIC CORRESPONDENCE FUNCTION of the system provides frequencies and facilities enabling the vessel to make calls to and from shore telephones.

AUTHORIZED USE OF FREQUENCIES

Many frequencies are available in both the 2 MHz and 156–162 MHz bands.[2] Refer to Part 83 of FCC Rules for a list of requirements.

[2] In the 2 MHz band, 2182 kHz plus two working channels usually are required by the FCC rules. For the VHF-FM band, 156.3 and 156.8 MHz (Channels 6 and 16) are mandatory as well as at least one working channel. In addition, certain local operations require equipping with other frequencies.

The list of U.S. VHF-FM frequencies is shown in Chapter 7. A recommended channelization, depending on the number of channels your equipment has, can also be found there. Below is a partial list of frequencies available to the 2 MHz system with their authorized use:

Frequency	*Use*	*Areas*
2003 kHz	Ship-to-ship—Operational	Great Lakes only
2082.5 kHz (SSB)	Ship-to-ship—Operational	All areas
2142 kHz	Ship-to-ship—Operational	Pacific coast area south of latitude 42° N. on a daytime basis only
2182 kHz	Distress—Safety—Calling	All areas
2203.0 kHz (SSB)	Ship-to-ship—Operational	Gulf of Mexico only
2638 kHz	Ship-to-ship—Operational	All areas
2738 kHz	Ship-to-ship—Operational	All areas except Great Lakes and Gulf of Mexico
2830 kHz	Ship-to-ship—Operational	Gulf of Mexico only

All the frequencies listed above (except 2182 kHz) are primarily safety frequencies. However, they may be used on a not-to-interfere basis with safety communications for operational and certain commercial functions. In addition, the U.S. Coast Guard has made 2670 kHz available for use by nongovernment ship stations. This use is limited to operational or safety communications with Coast Guard shore or ship stations only. As all stations do not maintain a continuous guard on 2670 kHz, initial contact should be established on 2182 kHz.

Public coast stations for making telephone calls between ship and shore are operated by numerous telephone companies and private business organizations. Recreational vessels will primarily use the VHF services of these stations. Many of these stations also operate in the 2 MHz band. On the Great Lakes and in the Mississippi Valley, high-frequency bands are also in use. A High Seas service using the high-frequency bands is available for long-range

communications. Incoming calls to shore are received by these public coast stations and are then routed through regular land telephone systems. Shore-to-ship message flow patterns are reversed.

Additional information on the public correspondence service is provided in Chapter 5.

Chapter 3. Operating Procedures (Other Than Emergency)

MAINTAIN YOUR WATCH

While any radiotelephone is turned on, keep its receiver tuned to the applicable distress frequency, 2182 kHz or 156.8 MHz (Channel 16), and listen so that you may hear any call for assistance. Maintain your distress guard. Remember, others are doing the same thing and will hear you if YOU ever need help. Although your watch on the distress frequencies will be interrupted while you are engaged in activities such as making ship-to-shore calls and copying marine information broadcasts, someone else will still be listening, and the sooner you return to your listening watch on the distress frequencies the larger the listening audience will be.

HOW TO MAKE CALLS OTHER THAN DISTRESS, EMERGENCY, OR SAFETY

As previously stated, brevity consistent with clarity is the key to good communications and will result in efficient use of the system. Listen to make sure the frequency is not busy. If it is free, put your transmitter on the air and say:

> STATION CALLED (name and call sign, if known) — THIS IS (Station Calling: name and call sign) — OVER (use of "OVER" is optional).

Example: Nonemergency Call

> MARY JANE WA 5678 — THIS IS BLUE DUCK WA 1234 — OVER

(Preliminary call should not exceed 30 seconds)

LISTEN FOR A REPLY. If no contact is made, wait at least 2 minutes. Then make the call again in the same manner. This procedure may be repeated no more than three times. If you are not successful

during that interval, wait at least 15 minutes before making your next attempt.

If you have made the original contact on one of the distress frequencies, agree on a working channel after making contact, and switch to that channel. If you have made the original call on an intership or ship-to-shore working frequency, there is no need to shift, and you can commence your communication. Again, it is stressed that you should make your communication as brief as you can because someone may be waiting to use the channel. This consideration of others will help to make the available system more dependable and reliable. When you complete the communication, you need only to sign off with your call sign:

WA 1234 OUT.

Chapter 4. Operating Procedures (Distress, Urgency, and Safety)

GENERAL

In an emergency, use any means at your disposal to attract attention and obtain assistance. These means include radiotelephone, visual signals, audio signaling, and alarms. For use with the radiotelephone, two frequencies have been set aside for use in emergency situations: 2182 kHz in the 2 MHz band and 156.8 MHz (Channel 16) in the VHF-FM band. However, when the mobile station in distress receives no answer to a distress message transmitted on the calling frequency, it may transmit on any other available frequency on which it can attract attention. Depending on the degree of emergency, use one of the three spoken signals to alert others on the frequency:

MAYDAY (distress signal)

PAN (urgency signal)

SECURITY (safety signal)

Use the distress signal MAYDAY only when grave and imminent danger threatens your vessel and you require immediate help. This signal and the subsequent distress message shall be sent ONLY on the authority of the person responsible for the vessel or in charge at the time of the distress. When this signal is announced on the distress frequencies (or any other frequency available), it should be heard by nearby vessels and/or shore stations. For less serious situations than those warranting the distress signal, use either the urgency or the safety signal. Communications preceded by any of these emergency signals must be given precedence over other routine communications. When YOU hear one of these signals, it is your obligation to terminate any transmissions you may be making which would interfere with such communications. You must then listen to the message and render any assistance that you can.

DISTRESS PROCEDURE

Distress communications normally include the following actions:

1. If available, use of the RADIOTELEPHONE ALARM SIGNAL followed by—
2. Distress signal MAYDAY
3. DISTRESS MESSAGE
4. Acknowledgement of receipt of distress message
5. Rebroadcast of the distress message (if required and deemed necessary by the controlling station)
6. Termination of the distress

RADIOTELEPHONE ALARM SIGNAL

In the 2 MHz band this alarm signal consists of two audio frequency tones transmitted alternately. This signal is similar in sound to the words DUTY DUTY DUTY spoken at moderate speed. When generated by automatic means, it shall be sent as continuously as practicable over a period of not less than 30 seconds nor more than 1 minute. The purpose of the signal is to attract the attention of the person on watch or to actuate automatic devices giving the alarm. The radiotelephone alarm signal shall be used only with the distress signal except in the two situations discussed in the section dealing with the urgency signal below.

DISTRESS CALL AND MESSAGE

Sending Distress Call and Message

The distress call consists of:

- Distress signal MAYDAY (spoken three times)
- The words THIS IS (spoken once)
- Call sign and name of the vessel in distress (spoken three times)

The distress message immediately follows the distress call and consists of:

- Distress signal MAYDAY
- Call sign and name of the vessel in distress
- Position of vessel in distress by latitude and longitude or by bearing (true or magnetic, state which) and distance to a well-known landmark such as a navigational aid or small island, or in any terms which will assist a responding station in locating the vessel in distress
- Nature of the distress (sinking, fire, etc.)
- Kind of assistance desired
- Any other information which might facilitate rescue, such as:
  length or tonnage of vessel
  number of persons on board and number needing medical attention
  color of hull, decks, cabin, etc.

Example: Distress Call

(Send radiotelephone alarm signal, if available, for at least 30 seconds but not more than 1 minute.)

MAYDAY—MAYDAY—MAYDAY — THIS IS WA 1234—
WA 1234—WA 1234—BLUE DUCK—BLUE DUCK—
BLUE DUCK — DUNGENESS LIGHT BEARS 185
DEGREES MAGNETIC—DISTANCE 2 MILES — STRUCK
SUBMERGED OBJECT — TAKING WATER FAST —
ENGINE DISABLED — NEED PUMPS—MEDICAL
ASSISTANCE—AND TOW — ONE PERSON COMPOUND
FRACTURE OF ARM — ESTIMATE WILL REMAIN
AFLOAT TWO HOURS — VESSEL IS TWENTY FOOT
CABIN CRUISER WHITE HULL BLUE TRIM — OVER

Acknowledgement Distress Message

If you receive a distress message from a vessel and you do not hear the message answered, then YOU shall answer. If you are reasonably sure that the distressed vessel is not in your vicinity, you should wait a short time for others to acknowledge. If none do, you shall acknowledge. In any event, you must log all pertinent details of the distress call and message.

Acknowledge receipt of a distress message as follows:

- Call sign and name of vessel sending the distress message (spoken three times)

- The words THIS IS
- Call sign and name of your station (spoken three times)
- The words RECEIVED MAYDAY

After you acknowledge receipt of the distress message, allow a short interval of time for other stations to acknowledge receipt, if any are in a position to assist. When you are sure of not interfering with other distress-related communications, contact the vessel in distress and advise what assistance you can render. Make every effort to notify the Coast Guard. The following message shall be sent ONLY with the permission of the person in charge of your vessel:

- Call sign or name of distressed vessel
- The words THIS IS
- Call sign or name and call sign of your station
- Your position
- Your intentions (speed at which you are proceeding, arrival time, assistance you can render on arrival, any action taken to obtain additional assistance)
- The word OVER

Example: Acknowledgement Message

WA 1234—WA 1234—WA 1234 — BLUE DUCK—BLUE DUCK—BLUE DUCK — THIS IS WZ 4321—WZ 4321—WZ 4321 — WHITE WHALE — RECEIVED MAYDAY — OVER

Example: Required Offer of Assistance

After a short interval but long enough to be sure that further transmissions will not cause harmful interference and long enough to work out relative position and time to reach the distressed vessel, say:

BLUE DUCK THIS IS WHITE WHALE — OVER (on hearing the word OVER from BLUE DUCK, continue) — I AM PROCEEDING TOWARD YOU FROM TEN MILES WESTWARD — EXPECT TO ARRIVE IN ONE HOUR — COAST GUARD HAS BEEN NOTIFIED INCLUDING YOUR NEED FOR DOCTOR — I HAVE ONE INCH

PORTABLE POWER PUMP — PLEASE ADVISE IF MY ASSISTANCE IS NOT NEEDED — WZ 4321 — OVER

URGENCY SIGNAL

The urgency signal may be sent either on one of the distress frequencies or on one of the frequencies which may be used in case of distress. It consists of three repetitions of the word PAN transmitted before the call sign and name of the calling station, and indicates that the calling station has a very urgent message to transmit concerning the safety of a vessel or person.[3] The urgency signal is preceded by the radiotelephone alarm signal (if the boat has the equipment) ONLY for the following purposes:

- Transmission of an urgent storm warning by an authorized shore station
- Loss of a person overboard, but only when the assistance of other vessels is required and cannot be obtained by the use of the urgency signal only (the radiotelephone alarm signal shall not be repeated by other stations)

Example: Urgency Message
(Not involving possible use of radiotelephone alarm)

PAN—PAN—PAN — ALL STATIONS (or a particular station) — THIS IS WZ 2345 DOLPHINE THREE MILES EAST OF BARNEGAT LIGHT — HAVE LOST MY RUDDER — AM DRIFTING TOWARD SHORE AND REQUIRE A TOW — SEVEN PERSONS ON BOARD — DOLPHINE IS A THIRTY-TWO FOOT CABIN CRUISER — GREEN HULL WHITE DECK HOUSE — THIS IS WZ 2345 DOLPHINE — OVER

SAFETY SIGNAL

The safety signal consists of three repetitions of the word SECURITY transmitted before the call sign and name of the calling station. It indicates that the station is about to transmit a message

[3] The urgency signal shall be sent ONLY on the authority of the person responsible for the vessel. This law is important and easy to follow on large vessels. But in a small craft where the sole person responsible is lost and those remaining are passengers, common sense must prevail as to who shall assume charge.

either concerning the safety of navigation or giving important meteorological warnings.

Send the initial safety signal and call on 2182 kHz or 156.8 MHz (Channel 16). Whenever it is practicable to send the safety message itself on a working frequency (e.g., ship-to-ship frequency), announce this frequency at the end of the call.

Examples: Safety Call and Message

On 2182 kHz

SECURITY—SECURITY—SECURITY — ALL STATIONS
(or particular station) — BARBARA ANN LISTEN
2638 kHz WZ 3456 — OUT

On 2638 kHz

(Or any other working frequency for your area)

SECURITY—SECURITY—SECURITY — THIS IS
WZ 3456 BARBARA ANN — A LOG APPROXIMATELY
TWENTY FEET LONG TWO FEET IN DIAMETER ADRIFT
OFF HAINS POINT POTOMAC RIVER — WZ 3456 — OUT

Note: Sometimes you can get better coverage by passing such information to a Coast Guard station for broadcasting.

Chapter 5. Public Correspondence Service

GENERAL

By utilizing the services of Public Coast Stations, ships may make and receive telephone calls to and from any telephone with access to the nationwide telephone network, including telephones overseas and on other ships and aircraft. In effect, these coast stations extend the talking range of ship telephones almost without limit.

Three categories of Public Coast Stations operate in different frequency bands to provide for telephone service over a wide range of situations. The following brief descriptions of these services are intended to acquaint vessels owners with those aspects which are of interest in selecting a service appropriate for their requirements. This information is followed by some suggestions for operating ship stations on public correspondence channels.

DESCRIPTION OF PUBLIC COAST STATIONS

VHF-FM Service (Public Class III-B Coast Stations)

VHF-FM service offers reliable operation with good transmission quality over relatively short distances up to 20–50 miles, using channels in the 157–162 MHz range. Relatively inexpensive ship-board equipment is available.

Under FCC Rules, VHF-FM capability at a ship station is a pre-requisite for licensing in other frequency ranges, and the Rules prohibit the use of other frequencies when within VHF range.

Locations of VHF-FM Coast Stations operating in the continental United States are shown on Map A. Continuing activity in new station construction makes this, or any similar information, subject to frequent correction. Ship operators should keep posted on current situations in their areas of interest.

The following channels are allocated for VHF public correspondence in the United States:

Channel Number	Transmitting Frequencies	
	Coast	Ship
24	161.800 MHz	157.200 MHz
84	161.825	157.225
25	161.850	157.250
85	161.875	157.275
26	161.900	157.300
86	161.925	157.325
27	161.950	157.350
87	161.975	157.375
28	162.000 MHz	157.400 MHz

In addition, in some localities not yet served by VHF-FM coast stations, ships are permitted to make telephone calls through local VHF-FM base stations operating in the land mobile radiotelephone service.

Coastal Harbor Service (Public Class II-B Coast Stations)

The Coastal Harbor operates over considerably greater distance ranges than VHF-FM, but ranges vary widely with time and a variety of circumstances. Distances in excess of 1,000 miles are possible at certain times, but may be limited to less than 100 miles at other times. Variations in propagation distances in the 2 MHz range are explained in the Technical Report of RTCM Special Committee No. 59. These frequencies are the only MF ones used along the sea coasts and Gulf of Mexico. In addition to the 2 MHz band, coast stations on the Great Lakes and in the Mississippi Valley also operate in the high-frequency bands.

Currently the Coastal Harbor Service is undergoing conversion from double sideband (DSB) to single sideband (SSB) operation. Under recently adopted FCC Rules, all DSB operations will terminate by January 1, 1977. Conversion of public coast stations to SSB will begin shortly. After conversion and before 1977, coast stations will be capable of using the compatible mode of SSB, known as A3H (full carrier), to enable continued service to ships equipped for DSB. Bell System Coast Stations will employ the A3H mode and A3A (reduced carrier) until 1977, and A3A only thereafter.

Map B shows the public correspondence coast stations operating in the United States exclusive of Alaska and Hawaii. The frequencies listed on this map are those of present DSB channels.

High Seas Service (Public Class I-B Coast Stations)

High Seas is a long-range service providing telephone communications to suitably equipped ships almost anywhere in the world. Three coast stations, operated by A.T. & T., in New York, Florida, and California, employ high-powered transmitters and elaborate antenna systems, for operation on a large number of channels between 4 and 23 MHz. These coast stations are now equipped for SSB operation.

Propagation aspects dictate changes of frequencies with time of day, season, and ship position. In view of this and other complexities, ship operators contemplating use of this service should contact the nearest Bell Telephone System office for advice and assistance.

PROCEDURES FOR MAKING AND RECEIVING CALLS

It is important for any vessel owner who plans on using the public radiotelephone service to register with the owner of the coast station serving his primary area of interest. Registration is free. The main reason for registration is to provide the coast station with the name and address to be used in billing for ship-originated calls. Public coast stations are supported by charges made in accordance with tariffs filed with regulatory authorities. If a ship is not registered, billing information must be passed to the coast operator each time a call is made, with consequent expenditure of channel occupancy time and operator effort. Registration may also serve to establish the procedures under which a coast station will call the ship in completing land-originated calls. Ship stations equipped for selective signaling must register in order to obtain assignment of a radiotelephone or ringer number.

Making Ship-to-Shore Calls

- Use the VHF-FM Service, in preference to the Coastal Harbor or High Seas Services, if within range.
- Listen to determine if the working channel of the desired coast station is busy. A busy condition is evidenced by hearing speech, signaling tones, or a busy signal.
- If the channel is busy, wait or switch to an alternate channel if available.

- If it is not busy, put the ship transmitter on the air and say:

  (Name of coast station) — THIS IS (your call sign once)

- Listen for a reply. If none is received, repeat call after a brief interval.

When the coast station operator answers, say:

> THIS IS (call sign and name of vessel and ship's telephone number, if assigned) CALLING (telephone number desired).

If vessel is not registered or if the coast station operator involved does not have the listing, the operator will ask for additional identification for billing purposes. At completion of call, say:

> (Call sign—name of vessel) — OUT

Receiving Shore-to-Ship Calls

Obviously, to receive public coast station calls, a receiver must be in operation on the proper channel. When calling on VHF-FM frequencies, Bell System coast stations will call on 156.8 MHz (Channel 16) unless they have selective signaling, in which case the shore station will dial the number on a working channel. When calling on coastal harbor frequencies, the preferred channel is the working channel of the coast station. Bell System coast stations routinely call on a working channel, but will call on 2182 kHz when requested by the calling party. If vessel operators are expecting calls on coastal harbor frequencies and not planning to monitor the working channel, they should tell prospective calling parties to so advise the Marine Operator.

Selective signaling, of course, requires a second receiver, since monitoring of the working channel would be essential. It is illegal to send dial pulses over 156.8 MHz (Channel 16) or 2182 kHz.

Making Ship-to-Ship Calls Through a Coast Station

Although contacts between ships are normally made directly, ship-to-ship calls can be made by going through your coast station, using the same procedure as you do for ship-to-shore calls.

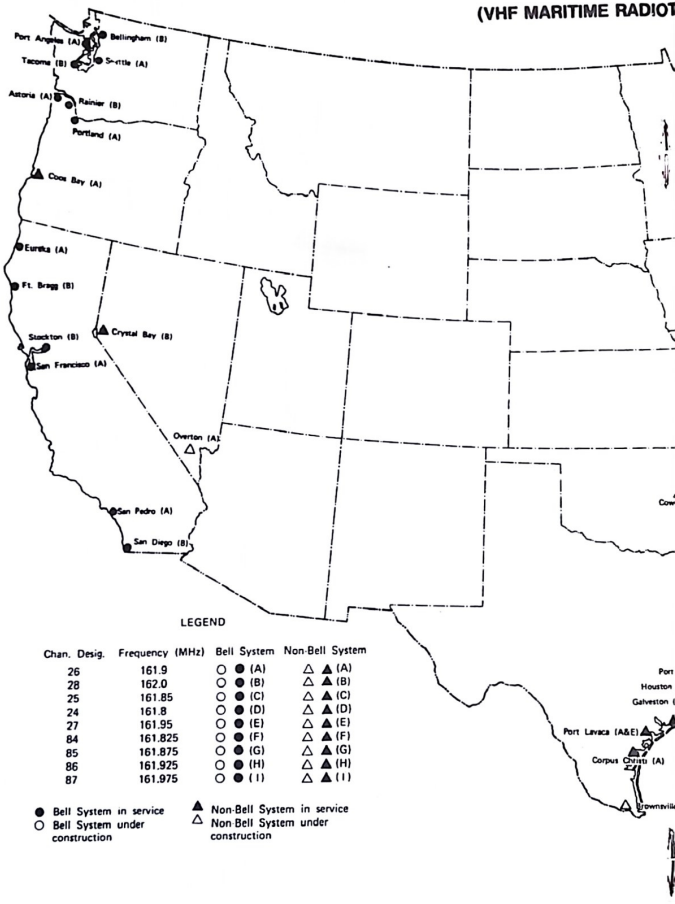
Making Inland Waterways Calls

Radiotelephone traffic on the rivers and inland waterways is handled through WCM Pittsburgh, WFM Louisville, WGK St. Louis,

and WJG Memphis, operating in the 2, 4, 6, and 8 MHz bands and the 157–162 MHz band. Ringer service is provided on all bands through all stations except WFN Louisville. In addition to calling vessels and ringing them on the working channels, each station makes calls on 156.8 MHz (Channel 16) if contact is not made on a working channel. (See Map B for station locations and frequencies employed in these bands.)

PUBLIC CLASS III B

(VHF MARITIME RADIOT



LEGEND

Chan.	Desig.	Frequency (MHz)	Bell System	Non-Bell System
26		161.9	○ ● (A)	△ ▲ (A)
28		162.0	○ ● (B)	△ ▲ (B)
25		161.85	○ ● (C)	△ ▲ (C)
24		161.8	○ ● (D)	△ ▲ (D)
27		161.95	○ ● (E)	△ ▲ (E)
84		161.825	○ ● (F)	△ ▲ (F)
85		161.875	○ ● (G)	△ ▲ (G)
86		161.925	○ ● (H)	△ ▲ (H)
87		161.975	○ ● (I)	△ ▲ (I)

● Bell System in service
○ Bell System under construction

▲ Non-Bell System in service
△ Non-Bell System under construction

COAST STATIONS

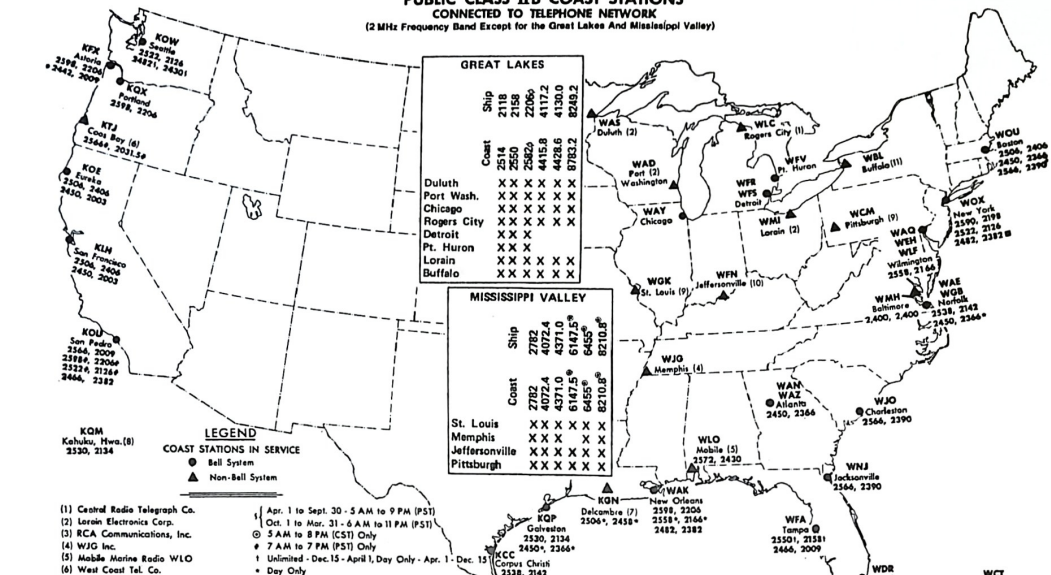
(LEPHONE SERVICE)

August, 1971

PUBLIC CLASS IIB COAST STATIONS

CONNECTED TO TELEPHONE NETWORK

(2 MHz Frequency Band Except for the Great Lakes And Mississippi Valley)



NOTE

FREQUENCIES: Shown in KHz under each location - first frequency is coastal station transmitting; second frequency is ship station transmitting. All stations equipped for 2182 KHz.

PART III

Chapter 6. Compendium of Principal Regulations Governing Voluntarily Installed Ship Radiotelephone Stations

GENERAL

This Chapter and Chapter 7 summarize the most significant rules which should be familiar to licensees and operators of voluntarily installed ship radiotelephone stations. Certain special rules applicable only in the Alaska area are not included. It must be understood, however, that neither this rule digest nor the paraphrased rules appearing elsewhere in this manual, are issued or sponsored by the Federal Communications Commission.

Because the maritime radio service is constantly changing, the rules under which it operates must necessarily be modified from time to time. Therefore, readers are cautioned to check the continued accuracy of the material herein against the current edition of the complete regulations on this subject, the Federal Communications Commission's "Part 83—Stations on Shipboard in the Maritime Services." All ship radio stations are required to be provided with a copy of this publication. It may be purchased on a subscription basis by ordering Volume IV of the FCC Rules and Regulations from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20401. The subscription is for an indefinite period and includes the basic volume plus all amendments, mailed to subscribers by the Superintendent of Documents when issued.

As a convenience in locating the complete rule, the applicable rule numbers are indicated in the left-hand margins opposite the pertinent text that follows.

1. STATION LICENSE

83.21 A radio station may not be operated except under and in accordance with a valid station authorization issued

by the Federal Communications Commission. A station
83.23 license may be granted, except to an alien, on submission of a properly completed formal application.

The station license is required to be conspicuously
83.102 posted at the principal operating location on board the vessel. Only FCC type accepted equipment described in the Commission's Radio Equipment List is authorized to be used.

83.24 Appropriate application forms may be obtained from any of the FCC field offices listed in Appendix I. Your nearest FCC field office will advise you whether the transmitter you propose to use is acceptable for licensing in the Maritime Mobile Service, if you furnish the manufacturer's name and the model or type number of the transmitter.

Application for a regular-term (usually 5 years) ship
83.36 radiotelephone station license must be made on FCC Form 502 for the radiotelephone frequencies in the bands 1.6–4 MHz (MF), 4–23 MHz (HF), and 156–158 MHz (VHF). Your application must be (1) accurate and complete, (2) accompanied by the appropriate fee, and (3) signed. Except when an Interim Station License is desired, as explained in the following paragraph, send your station license application direct to the Federal Communications Commission, Gettsyburg, Pa. 17325.

Frequently, the applicant wishes to obtain necessary authority to use his ship radiotelephone station while awaiting action by the Commission on his formal appli-
83.35 cation. To meet this need, the applicant may immediately obtain an Interim Ship Station License by appearing in person at his nearest FCC Field Office and filing
83.64 an acceptable formal application (FCC Form 502) with an informal request for an Interim Station License. This license, valid for 6 months from the issuance date, permits the applicant to operate his ship radiotelephone
83.369 station while awaiting receipt of a full-term station license. An Interim Station License will not be renewed, unless otherwise directed by the Commission in exceptional circumstances.

Application for renewal of the full-term station license
83.36 (FCC Form 405-B) should be made within 90 days but not later than 30 days before its expiration date. When

the licensee has made timely application for renewal of
83.34 license, the existing license shall continue in effect until the licensee is otherwise notified by the FCC. A ship station licensee operating his station by virtue of the foregoing automatic provisions after the expiration date specified in the license shall post with the expired station license, either a signed copy of the renewal application or a statement certifying that the licensee has mailed or filed a renewal application and showing the date of mailing or filing.

If you permanently discontinue operation of the ship station described in the station license issued to you,
83.73 as, for example, if you sell your boat, you are required to promptly return the station license to the Secretary, FCC, Washington, D.C. 20554. In the event the license is not available for this purpose, send a telegram or letter to the Secretary stating the reason why the license is not available and requesting that the license be canceled. Otherwise, since the license is in your name, any violations committed in the operation of the station after it has left your control may be your responsibility.

2. OPERATOR LICENSE

Except for safety communications, only a person holding the proper class of valid operator license or permit issued by the Commission is authorized to actu-
83.152 ally operate a radiotelephone station on board a boat of U.S. registry. The licensed operator, if authorized by the station licensee or an agent thereof, may permit any
83.161 person to speak into the station microphone, provided he insures operation of the station is in compliance with governing law and regulations.

For operation of the usual radiotelephone ship sta-
13.61(h) tion, only a Restricted Radiotelephone Operator Permit is required. This permit may be obtained by U.S. citizens and nationals without examination, but the applicant must be able to declare on the application form (FCC Form 753–A) that he is familiar with the applicable FCC rules. Submit the properly completed application and appropriate fee to the FCC, Gettysburg, Pa. 17325.

All adjustments or tests of the radiotelephone trans-

83.160 and 83.162 mitter during or coincident with the installation, servicing, or maintenance of such apparatus which may affect the proper operation of the station must be performed by or under the immediate supervision and responsibility of a person holding a First-Class or Second-Class Commercial Radio Operator License (either radiotelephone or radiotelegraph), who shall be responsible for the proper functioning of the station equipment.

83.165 The Restricted Radiotelephone Operator Permit must be either posted in a conspicuous place at the principal location on board ship at which the station is operated (i.e., with the station license) or kept on the operator's person. All other classes of radio operator licenses must be posted with the station license while the licensee is employed or designated as radio operator of the station.

3. DISTRESS AND CALLING FREQUENCIES

83.352 For ship radiotelephone stations operating in the MF band, the distress and calling frequency is 2182 kHz. All stations operating in this band must maintain an efficient listening watch on 2182 kHz at all times while their station receiver is on and is not being used for 83.223 communication on another frequency.

83.353(b) 83.244 For ship radiotelephone stations operating in the VHF band, the distress, calling, and safety frequency is 156.8 MHz (Channel 16). An efficient listening watch is required on this frequency at all times while the station receiver is on and is not being used for communication on another frequency.

4. USE OF DISTRESS FREQUENCY AND CALLING FREQUENCIES

The operational use of 2182 kHz and 156.8 MHz (Channel 16) is restricted to:

83.234(b) (i) Distress signal MAYDAY, followed by distress message;

83.247(c) (ii) Urgency signal PAN, followed by a very urgent message directly concerning safety;

83.249(c) (iii) Safety signal SECURITY, followed by a brief message concerning the safety of navigation or important meteorological warning;

83.353(a)(b) (iv) Call to a particular station, and reply to a call;

83.366(c) (v) Brief radio operating signals (such as agreeing on the channel to be used for exchanging message traffic).

83.366 (b)(2) Calling a particular station shall not continue for a period of more than 30 seconds in each instance. If you do not hear the called station reply, do not call that station again until after an interval of 2 minutes. When a station called does not reply to a call sent three times at intervals of 2 minutes, cease calling and do not renew calling until after an interval of 15 minutes. These limitations do not apply in the event of an emergency involving safety.

83.366 (b)(1) and (b)(2) Except when other operating procedure is used to expedite safety communication, ship stations, before transmitting on an intership working frequency, shall first establish communication with each other by call and reply on 2182 kHz or 156.8 MHz (Channel 16). However, when the calling station knows that the called station is maintaining a simultaneous listening watch on 2182 kHz or 156.8 MHz (Channel 16) and on an authorized intership working frequency, it may initiate calls on such working frequency.

83.366(c) After establishing communication with another station by call and reply on 2182 kHz or 156.8 MHz (Channel 16), ship stations shall change to an authorized intership working frequency for the exchange of messages.

5. SHIP-TO-SHIP WORKING FREQUENCIES IN THE MF AND VHF BANDS

83.358 The following frequencies are currently assigned for intership "working" primarily for safety communication and secondarily for operational and certain business purposes in the MF band:

(i) 2003 kHz, for use exclusively in the Great Lakes area;

(ii) 2082.5 kHz, all areas (single sideband only);

(iii) 2142 kHz, Pacific Coast area south of latitude 42° N., on a day only basis;

(iv) 2203 kHz, Gulf of Mexico (single sideband only);

(v) 2638 kHz, for use in all areas;

(vi) 2738 kHz, for use in all areas except the Great Lakes and the Gulf of Mexico;

(vii) 2830 kHz, for use in the Gulf of Mexico.

The following frequencies are currently assigned for use in all areas by noncommercial vessels in the VHF 156–162 MHz band:

(i) 156.3 MHz (Channel 6) for Intership safety (this frequency is mandatory);

(ii) 156.8 MHz (Channel 16) for Distress, Safety, and Calling (this frequency is mandatory);

(iii) 156.425 MHz (Channel 68) for intership and ship-to-coast use (subject to the conditions of use in Section 7 of this chapter);

(iv) 156.525 and 156.625 MHz (Channels 70 and 72 for intership use only (subject to the conditions of use in Section 7 of this chapter);

(v) 156.450 MHz (Channel 9) for intership and ship-to-coast use (shared with commercial vessels).

83.359 Other intership and ship-to-coast channels are available for limited purposes such as Port Operations.

6. USE OF SHIP-TO-SHIP WORKING FREQUENCIES IN THE MF AND THE VHF BANDS

Use of the intership "working" frequencies in the MF band (see Section 5 of this chapter) is authorized solely for communications pertaining to safety, operational,

and ship business purposes. Permissible use is further limited according to the class of vessel, as explained hereunder.

The PRIMARY use of these intership frequencies by all ship radiotelephone stations is for safety communication, defined as follows:

83.6(a) Safety communication: The transmission or reception of distress, alarm, urgency, or safety signals, or any communication preceded by one of these signals, or any form of radio communication which, if delayed in transmission or reception, may adversely affect the safety of life or property.

On a SECONDARY basis, on condition that interference is not caused to safety communication, these intership frequencies may be used:

(i) By commercial boats and by commercial transport vessels of municipal or State governments, for OPERA-

83.358 TIONAL COMMUNICATION, that is, for radio communication concerning the navigation, movement, or management of a ship or ships. These terms are defined as follows:

NAVIGATION: Includes the piloting of a vessel.

MOVEMENT: Includes information and necessary communication relative to when and where the boat or ship will move or be moved as, for example, rendezvous at a port, basin, or marina, or for maneuvers during a cruise.

MANAGEMENT: Includes the obtaining of necessary supplies for the ship, limited to immediate needs, and the scheduling of repairs or modifications to the ship, limited to communication with those directly involved in the repairs or modifications or concerned with changes in the movement of the ship because of those repairs or modifications.

Noncommercial intership frequencies in the VHF band (see Section 5 of this chapter) are subject to the following conditions of use:

83.351 (i) 156.425 MHz (Channel 68), available to fulfill the wide scope of needs of noncommercial boats in cases where the number of channels avail-

able is limited (this frequency, however, may not be used in lieu of frequencies allotted for Distress, Safety, and Calling, Intership Safety, Navigational, Port Operations, or Public Correspondence).

83.351 (ii) 156.525; 156.625 MHz (Channels 70 and 72), available, on an interim basis, for noncommercial intership communications during localized fleet operations, maneuvers during a cruise, and rendezvous.

7. TIME LIMITATION FOR COMMUNICATIONS ON THE SHIP-TO-SHIP WORKING FREQUENCIES IN THE MF BAND

83.366(g) Any one exchange of communication between any two ship stations on an intership working frequency (see Section 5 of this chapter) shall not exceed 3 minutes in duration after the two stations have established contact by calling and answering.

83.366(g) Subsequent to such exchange of communications on the intership working frequencies in the MF band, these frequencies shall not be used again for communication between the same two stations until 10 minutes have elapsed.

The foregoing time limitations are not applicable in the event of an emergency involving safety.

All transmissions on an intership working frequency between two or more stations, engaged in any one exchange of signals or communications with each other, shall take place on only one frequency (i.e., the stations involved shall transmit and receive on the same frequency). This requirement, however, is waived in the event of an emergency whenever interference or limitation of equipment prevent use of this method of single-frequency communication.

When you cannot use VHF and must use MF, remember that you share the MF radiotelephone frequencies with approximately 150,000 other U.S. ship stations. In addition, some of these frequencies are shared with foreign ship radiotelephone stations. It is obvious that unless each one of the army of users of these "party

lines" exercises restraint and intelligence, the circuits can easily be reduced to an intolerable confusion and made useless for their legitimate purposes. Because of the propagation characteristics of these frequencies, your transmissions may seriously interfere with other stations thousands of miles away, even though you are not able to contact or are not plainly heard by another relatively close station with which you wish to communicate. The only solution, other than transferring your operations to the VHF band, is to (1) use your transmitter only when necessary and only for authorized types of communication, (2) use the lowest power required for the particular contact, (3) keep your transmissions short, (4) announce your call sign clearly, and (5) habitually treat other users with courtesy.

8. TEST TRANSMISSION PROCEDURE

83.365 Transmission of the radiotelephone alarm signal for testing purposes is not authorized. Other transmissions made for testing purposes must be kept to a minimum but are authorized when necessary and when properly conducted.

Always make sure by careful listening that the proposed test emissions will not cause interference. All test transmissions must be preceded by announcing the station call sign followed by the word TEST as a preliminary warning. If as a result of such announcement, any station transmits by voice the word WAIT, suspend testing.

After an appropriate interval of time, you may repeat the test announcement; if there is no response and careful listening indicates that harmful interference would not be created, the test may proceed as follows:

Announce the word TESTING, and follow with a count "1, 2, 3, 4, etc.," or test phrases or sentences that do not conflict with normal operating signals. The test signals shall not last longer than 10 seconds. At the conclusion of the test, make a voice announcement of the official call sign of the testing station. Do not repeat this transmission on 2182 kHz or 156.8 MHz (Channel 16) until at least 5 minutes have elapsed; on other

authorized frequencies, do not repeat until at least 1 minute has elapsed.

9. STATION IDENTIFICATION

83.364(a) All transmissions shall be identified by a voice announcement in the English language of the station's call sign. This identification shall be made:

(a) At the beginning and the end of each communication with any other station;

(b) At the beginning and the end of each transmission for any other purpose; and

(c) At intervals not exceeding 15 minutes whenever transmission is sustained for a period exceeding 15 minutes.

83.364(b) When an official call sign has not been allocated to a station, as for example, when a station is operating under an Interim Station License, the complete name of the boat on which the station is located and the name of the licensee must be announced in lieu of a call sign at the times specified above.

10. SHIP RADIOTELEPHONE STATION DOCUMENTS

83.367(b) Vessels voluntarily equipped with ship radiotelephone stations shall be provided with the following documents:

(i) A valid station license;

(ii) The necessary operator license or licenses;

(iii) The radio station log;

(iv) Part 83 of the Commission's Rules (may be kept ashore).

11. RADIOTELEPHONE STATION LOG

83.368 A radio log is required; each page must be (1) numbered; (2) bear the name of the vessel and call sign; and (3) be signed by the operator. Make entries showing the

time each watch begins and ends. Record as completely as possible all distress and alarm signals, all related communications transmitted or intercepted, and all urgency and safety signals and related communications transmitted. A record of all installations, service, or maintenance work performed that may affect the proper operation of the station must also be entered by the licensed operator doing the work, including his address and the class, serial number, and expiration date of his license.

The 24-hour system is used in a radio log; that is, 8:45 a.m. is written as 0845 and 1:00 p.m. as 1300. Local time is normally used, but Eastern Standard Time (EST) must be used throughout the Great Lakes. Vessels on international voyages use Greenwich Mean Time (GMT) exclusively. Whichever time is used, the appropriate abbreviation must be entered at the head of the time column.

83.115 Radio logs must be retained for at least a year, for 3 years if they contain entries concerning distress or disaster, and for longer periods if they concern communications being investigated by the FCC or against which claims or complaints have been filed.

Vessels that are subject to the provisions of (1) Title III, Parts II or III of the Communications Act; (2) the Great Lakes Agreement; or (3) the radio provisions of the Safety Convention must log additional entries (see 83.368(b), (c), and (d)).

1.6 Station logs shall be made available for inspection at the request of an FCC representative, who may remove them from the licensee's possession, or on request the licensee shall mail them to the FCC by either registered or certified mail, return receipt requested.

12. ADJUSTMENTS

83.160 The station licensee shall be responsible for the proper technical operation of his equipment. All transmitter adjustments or tests during or coincident with the installation, servicing, or maintenance of the station

83.162 that may affect its proper operation shall be made by or under the immediate supervision and responsibility

of a person holding a first-class or second-class operator license, who shall be responsible for the proper functioning of the station equipment on completion of his work.

13. RADIO GROUND CONNECTION

83.107(c)

Effective operation of the usual antenna of ship radiotelephone stations operating in the MF band depends on an adequate radio ground connection. A satisfactory radio ground may be obtained by making a clean and tight connection to the hull of metallic-hulled vessels, with as short a lead as possible for the transmitter ground terminal and using heavy copper wire, strip, braid, or tubing. If the vessel has a nonmetallic hull, it may be necessary to provide a ground connection to a bare plate or strips of corrosion-resistant metal of at least 12 square feet in aggregate area fixed to the hull below the waterline, if connecting to the engine, plumbing, etc., does not suffice.

14. SECRECY OF COMMUNICATIONS

83.174

Section 605 of the Communications Act of 1934, as amended, prohibits the divulgence of interstate or foreign communications transmitted, received, or intercepted by wire or radio to anyone other than the addressee or his agent or attorney, or to persons necessarily involved in the handling of the communications, unless the sender authorizes the divulgence of the contents thereof. Persons intercepting such communications or becoming acquainted therewith are also prohibited from divulging the contents or using the contents for the benefit of themselves or others.

Obviously, this requirement of secrecy does not apply to radio communications relating to ships in distress, nor to radio communications transmitted by amateurs or broadcast by others for the use of the general public. It does apply, however, to all other communications. These statutory secrecy provisions cover messages addressed to a specific ship station or coast station, or to a person via such station.

15. OBSCENITY, INDECENCY, AND PROFANITY

When two or more ship stations are communicating with each other, they are talking over an extensive party line. Users should always bear this fact in mind and assume that many persons are listening. These listeners include women and children, many of whom regularly monitor the channels in order to hear their husbands or fathers on board vessels at sea. All users therefore have a compelling moral obligation to avoid offensive remarks. They also have a strict legal obligation, inasmuch as Section 1464 of the U.S. Criminal Code makes it a criminal offense for any person to transmit communications containing obscene, indecent, or profane words, language, or meaning. Whoever utters any obscene, indecent, or profane language by means of radio communication shall be fined not more than $10,000 or imprisoned not more than 2 years, or both.

16. REVOCATION OF STATION LICENSE

A station license may be revoked for:

(i) Willful or repeated violation of or willful or repeated failure to observe, any provision of the Communications Act or any rule or regulation of the Commission authorized by a treaty ratified by the United States;

(ii) Willful or repeated failure to operate substantially as set forth in the license;

(iii) Violation of or failure to observe any cease and desist order issued by the Commission;

(iv) False statements knowingly made either in the application for license or in any statement of fact which may be required pursuant to such application;

(v) Conditions coming to the attention of the Commission which would warrant it in refusing to grant a license on an original application.

17. SUSPENSION OF RADIO OPERATOR LICENSE

An operator license or permit may be suspended on proof sufficient to satisfy the Commission that the operator has—

Comm. Act 303m — (i) Violated any provision of any act, treaty, or convention binding on the United States, which the Commission is authorized to administer, or any regulation made by the Commission under any such act, treaty, or convention; or

13.66 and 13.67 — (ii) Transmitted superfluous radio communications or signals or communications containing profane or obscene words, language, or meaning; or

13.68 — (iii) Knowingly transmitted false or deceptive signals or communications, or a call sign or letter which has not been assigned by proper authority to the station he is operating; or

13.69 — (iv) Maliciously or willfully interfered with any other radio communications or signals; or

13.65 — (v) Willfully damaged or permitted radio apparatus or installations to be damaged; or

13.64 — (vi) Failed to carry out a lawful order of the master or person lawfully in charge of the ship on which he is employed; or

13.70 — (vii) Obtained or attempted to obtain, or assisted another to obtain or attempt to obtain, an operator's license by fraudulent means.

18. MONETARY FORFEITURES (FINES)

1.80 — In addition to or in lieu of any of the penalties already stated, both the licensee and the person operating the station, if he is not the same person, may be fined for the following offenses:

(i) Operation of a radio station without identifying such station at the times and in the manner prescribed.

(ii) Transmission of a false call sign or a false distress call or message.

(iii) Transmission of unauthorized communications on any frequency designated as a distress frequency or a calling frequency.

(iv) Operation of a radio station so as to interfere with any distress call or distress communication.

1.80 The licensee only may be fined for the following offenses:

(v) Operation of a radio station by any person not holding a valid radio operator license or permit of the class prescribed.

(vi) Operation of a radio station on a frequency not authorized by the FCC for use by such station, including operation with a frequency deviation beyond tolerances.

(vii) Failure to attenuate spurious emissions of a radio station to the extent required.

(viii) Operation of a radio station with power in excess of that authorized.

(ix) Use of radio station to transmit unauthorized communications, including those unauthorized for the particular station service.

(x) Operation of a radio station with a type of emission not authorized.

(xi) Operation of a radio station with transmitting equipment not authorized.

(xii) Failure to respond to a written official communication from the FCC.

These fines are imposed for willful or repeated violations of the types enumerated above. The second offense for the same violation is sufficient to constitute a repeated violation. A fine can be as much as $100 for each separate offense. There are certain maximum amounts for multiple offenses within 90 days prior to the

date of notice of apparent liability (i.e., $500 for the licensee and $400 for the operator if he is a different person from the licensee).

1.89 The FCC completes its legal responsibility for notifying you of these forfeitures when it mails notice to the last address of record. The burden is on the licensee to keep the FCC informed of his latest address. This is important if he wishes to take advantage of any defense procedures provided subsequent to the notice of apparent liability for a forfeiture.

Chapter 7. Receiver Specifications and VHF Equipment Channelization

RECEIVER SPECIFICATIONS

Before purchasing a VHF-FM radiotelephone, you should seriously consider the performance capabilities of the proposed radiotelephone and how it compares to your estimated requirements. In considering the transmitter section, the major concern should be the power output rating. All radiotelephone sets must be type accepted and must meet certain transmitter performance specifications established by the FCC.

Receiver performance specifications, however, unlike the transmitter specifications, are not rigidly controlled. The numerous specifications detailing receiver performance are much too complex to be discussed here. It is not the purpose of this text to recommend minimum performance standards for receivers but just to make you aware of the importance of these specifications. When purchasing a radiotelephone set, remember that regardless of how powerful your transmitter is, if you can't hear the other station—you can't communicate.

The two most important specifications, in that they directly affect the communication ability of the receiver, are the SENSITIVITY and ADJACENT CHANNEL REJECTION specifications.

Sensitivity Specification

In an FM receiver, the sensitivity is usually given as the number of MICROVOLTS required to produce 20 dB of quieting. In an FM receiver, the LOWER or SMALLER the number of microvolts, the better the sensitivity in a receiver, since halving the number of microvolts, for the same amount of quieting, could have the same effect on the strength and quality of the received signal as increasing the other station's transmitter power as much as FOUR TIMES.

Adjacent Channel Rejection Specification

The adjacent channel rejection is one of several different specifications that indicate the receiver's ability to reject unwanted

signals and accept only the desired signal. It is usually given as a number of decibels (dB). An example of this specification would be ADJACENT CHANNEL REJECTION—50 dB MINIMUM where the LARGER the number of decibels the better (assuming the same basis of rating). In view of the large quantity and complexity of the various receiver specifications, it is strongly recommended that you seek the advice of a competent communications technician before making a choice.

EQUIPMENT CHANNELIZATION

When you are ready to select channels for your VHF radiotelephone, remember that Channels 6 and 16 plus one other working channel are mandatory and must be installed in your set. The remaining channels (depending on the number your set has) can be used for any one of several categories. Their number depends largely on how the set will be used, where your vessel will operate, and what coastal stations are operating in your area. The following chart, prepared by the Aviation and Marine Division of the FCC, shows recommended channelization depending on the number of channels available in your set. You are not required to follow this recommended channelization (with the exception of the mandatory channels) and are free to channelize as you wish within current regulations. It is simply provided as a guide and aid for the time when you are ready to purchase your radiotelephone set. Remember, the more channels you have in your set, the more capability you will have.

RECOMMENDED EQUIPMENT CHANNELIZATION

Channel Designators	Type of Communications Points of Communications	Recreational Vessels Channel Capability 6	8	12	16	24
16 (Mandatory)	DISTESS, SAFETY & CALLING Intership & Ship-shore	1	1	1	1	1
06 (Mandatory)	INTERSHIP SAFETY Intership	1	1	1	1	1
12, 14, 20, 65, 66, 73, 74	PORT OPERATIONS Intership & Ship-shore	1	1	2	3	7
13	NAVIGATIONAL Intership & Ship-shore			1	1	1
15 and 162.55 or 162.4	ENVIRONMENTAL Ship receive only		1	1	2	2
17	STATE CONTROL Ship-shore			1	1	1
07, 09, 10, 11 18, 19, 79, 80	COMMERCIAL Intership & Ship-shore					
08, 67, 77, 88	COMMERCIAL Intership					
09, 68	NON-COMMERCIAL Intership & Ship-shore	1	1	1	1	1
69, 71, 78	NON-COMMERCIAL Ship-shore	1	1	1	1	3
70, 72	NON-COMMERCIAL Intership			1	2	2
24, 25, 26, 27 28, 84, 85, 86, 87	PUBLIC CORRESPONDENCE Ship-shore	1	2	2	3	5

CHANNEL/FREQUENCY DESIGNATORS

Channel	Ship	Coast	Channel	Ship	Coast	Channel	Ship	Coast
65	156.275	156.275	12	156.600	156.600	79	156.975	156.975
06	156.300	156.300	72	156.625	.....	20	157.000	161.600
66	156.325	156.325	13	156.650	156.650	80	157.025	157.025
07	156.350	156.350	73	156.675	156.675	24	157.200	161.800
67	156.375	.....	14	156.700	156.700	84	157.225	161.825
08	156.400	.....	74	156.725	156.725	25	157.250	161.850
68	156.425	156.425	15	.....	156.750	85	157.275	161.875
09	156.450	156.450	16	156.800	156.800	26	157.300	161.900
69	156.475	156.475	17	156.850	156.850	86	157.325	161.925
10	156.500	156.500	77	156.875	.....	27	157.350	161.950
70	156.525	.....	18	156.900	156.900	87	157.375	161.975
11	156.550	156.550	78	156.925	156.925	28	157.400	162.000
71	156.575	156.575	19	156.950	156.950	88	157.425	.....

SERVICE RECORD

Inspection or Service Date	License Number	Technician's Date	Signature and Address

NOTE: Adjustments can only be made by or under the immediate supervision and responsibility of a person holding a first or second class commercial radio operator license. [See FCC Rules 83.157 and 13.61(h)]

Adjustments Made, if any

HANDY RULES IN AN EMERGENCY

NAME OF BOAT:..... CALL SIGN:.....

SPEAK SLOWLY and CLEARLY

To indicate that you are in **DISTRESS:**

Transmit the ALARM SIGNAL[1] (if available) for approximately one minute on 2182 kHz

Send the following **DISTRESS CALL:**

"MAYDAY — MAYDAY — MAYDAY — THIS IS (Your boat's call and name repeated 3 times)"

Then send the **DISTRESS MESSAGE** composed as follows:

"MAYDAY (your boat's call and name)

(Position of your boat in latitude/longitude or true bearing and distance in nautical miles from a widely known geographical point—local names known only in the immediate vicinity are confusing)

(Nature of distress)

(Kind of assistance desired)

(Number of persons aboard and condition of any injured

Present seaworthiness of your boat)

(Description of your boat—length, type, cabin, masts, power, color)

(Your listening frequency and schedule)

THIS IS (your boat's call sign and name) OVER"

[1] The radio telephone alarm signal consists of two audio tones, of different pitch, transmitted alternately.

PHONETIC SPELLING ALPHABET

The spelling alphabet is to be used to identify letters when spelling out words, names, abbreviations and call signs in voice communications.

Letter to be Identified	Identifying Word	* Spoken as:
A	Alfa	**AL** FAH
B	Bravo	**BRAH** VOH
C	Charlie	**CHAR** LEE (or **SHAR** Lee)
D	Delta	**DELL** TAH
E	Echo	**ECK** OH
O	Oscar	**OSS** CAH
P	Papa	PAH **PAH**
Q	Quebec	KEH **BECK**
R	Romeo	**ROH** ME OH
S	Sierra	SEE **AIR** RAH

F	Foxtrot	**FOKS** TROT	T	Tango	**TANG** GO
G	Golf	GOLF	U	Uniform	**YOU** NEE FORM (or **OO** NEE FORM)
H	Hotel	HOH **TELL**			
I	India	**IN** DEE AH	V	Victor	**VIK** TAH
J	Juliett	**JEW** LEE **ETT**	W	Whiskey	**WISS KEY**
K	Kilo	**KEY** LOH	X	X-ray	**ECKS** RAY
L	Lima	**LEE** MAH	Y	Yankee	**YANG** KEY
M	Mike	MIKE	Z	Zulu	**ZOO** LOO
N	November	NO **VEM** BER			

* The syllables to be emphasized are in **bold face** type.

To **ACKNOWLEDGE** a **DISTRESS:** Immediately on hearing a distress message, send the following on 2182 kHz:

"(Call and name of distressed boat repeated three times)
THIS IS
(Your boat's call name repeated three times)
RECEIVED MAYDAY
THIS IS (Your boat's call and name)"

After a momentary delay to permit stations which might be closer to the distressed boat to acknowledge the distress message, send the following on 2182 kHz:

"MAYDAY
(Call and name of distressed boat) THIS IS
(Your boat's call and name)
(Your position) (latitude/longitude or true bearing and distance in nautical miles from a known geographical point)
(The speed at which you are proceeding towards, and the approximate time it will take you to reach the distressed ship).
THIS IS (Your boat's call and name) OVER"

THE URGENCY SIGNAL consists of three repetitions of the word **PAN** transmitted before the call. The urgency signal indicates that the calling station has very urgent message to transmit concerning the safety of a ship or person. The Urgency signal and the urgency message shall be sent on 2182 kHz.

THE SAFETY SIGNAL consists of three repetitions of the word **SECURITY,** transmitted before the call. The safety signal indicates that the station is about to transmit a message concerning the safety of navigation or giving important meteorological warnings. The safety signal shall be sent on 2182 kHz first and the safety message may then be sent on a working frequency, (e.g. an inter-ship frequency).

APPENDIX I

LOCATION OF THE FEDERAL COMMUNICATIONS COMMISSION ENGINEERING FIELD OFFICES

The addresses of Engineers in Charge of the 24 radio districts are included in Section 0.121 of the Commission's "Part 0 Statement of Organization, Delegation of Authority, and Other Information."

Here is a listing of all such field offices:

District Number	Address of the Engineer in Charge
1	Federal Communications Comm. 1600 Customhouse Boston, Massachusetts 02109
2	Federal Communications Comm. 748 Federal Building 641 Washington Street New York, New York 10014
3	Federal Communications Comm. 1005 U. S. Customhouse Philadelphia, Pennsylvania 19106
4	Federal Communications Comm. 819 Federal Building 31 Hopkins Plaza Baltimore, Maryland 21201
5	Federal Communications Comm. Military Circle 870 N. Military Highway Norfolk, Virginia 23502
6	Federal Communications Comm. 1602 Gas Light Tower 235 Peachtree Street, N. E. Atlanta, Georgia 30303
Sub-office	Federal Communications Comm. P. O. Box 8004 Room 238, Post Office Building Savannah, Georgia 31402
7	Federal Communications Comm. Room 919, 51 S. W. First Avenue Miami, Florida 33130
Marine Office	Federal Communications Comm. 738 Federal Office Building 500 Zack Street Tampa, Florida 33602
8	Federal Communications Comm. 829 Federal Office Building 600 South Street New Orleans, Louisiana 70130
Sub-office	Federal Communications Comm. 439 U. S. Courthouse & Customhouse Mobile, Alabama 36602
9	Federal Communications Comm. New Federal Office Building 515 Rusk Avenue, Room 5636 Houston, Texas 77002
Sub-office	Federal Communications Comm. 323 Federal Building 300 Willow Street Beaumont, Texas 77701
10	Federal Communications Comm. New Federal Courthouse & Office Building, Room 13E7 1100 Commerce Street Dallas, Texas 75202
11	Federal Communications Comm. Room 1758 U. S. Courthouse 312 No. Spring Street Los Angeles, California 90012
Sub-office	Federal Communications Comm. Fox Theatre Building 1245 Seventh Avenue San Diego, California 92101
Marine Office	Federal Communications Comm. P. O. Box 3009 300 South Ferry St., Room 2525 Terminal Island, San Pedro, California 90731
12	Federal Communications Comm. 323-A Customhouse (555 Battery Street) San Francisco, California 94111
13	Federal Communications Comm. 314 Multnomah Building 319 S. W. Pine Street Portland, Oregon 97204
14	Federal Communications Comm. 8012 Federal Office Building (1st Avenue & Marion) Seattle, Washington 98104
15	Federal Communications Comm. 504 New Customhouse 19th bet. California & Stout Sts. Denver, Colorado 80202
16	Federal Communications Comm. 691 Federal Bldg. & U. S. Courthouse 4th & Robert Streets St. Paul, Minnesota 55101
17	Federal Communications Comm. 1703 Federal Building 601 East 12th Street Kansas City, Missouri 64106
18	Federal Communications Comm. 1872 Everett McKinley Dirksen Building 219 South Dearborn St. Chicago, Illinois 60604
19	Federal Communications Comm. 1054 Federal Building Detroit, Michigan 48226
20	Federal Communications Comm. 905 Federal Building 111 West Huron St. Buffalo, New York 14202
21	Federal Communications Comm. 502 Federal Building P. O. Box 1021 Honolulu, Hawaii 96808
22	Federal Communications Comm. P. O. Box 2987 (322-323 Federal Building) San Juan, Puerto Rico 00903
23	Federal Communications Comm. P. O. Box 644 (Room G63 U.S.P.O. & Courthouse Building) Anchorage, Alaska 99510
24	Federal Communications Comm. 1919 M Street, N.W., Room 216 Washington, D. C. 20554